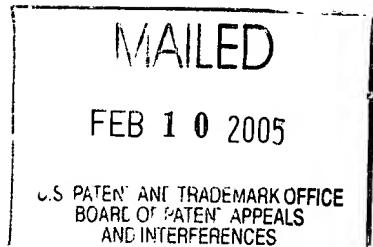


The opinion in support of the decision being entered today was not written for publication in a law journal and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES



Ex parte YUJI ONO
and
RYOICHI OHKURA

Appeal No. 2005-0536
Application No. 09/940,788

ON BRIEF

Before KIMLIN, WALTZ and DELMENDO, Administrative Patent Judges.
KIMLIN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1-3, all the claims remaining in the present application. Claim 1 is illustrative:

1. A single wafer type substrate cleaning method of wet-cleaned wafers which are not stored in a cassette, individually, in a sealed cleaning housing, said method consisting of the application of a spin drying treatment to the face of each wafer by supporting and rotating each wafer at high speed in the sealed cleaning housing while an inert gas for preventing oxidation is supplied to the face of the wafer in a drying step, where the

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amount of inert gas to be supplied to the face of each wafer is such that the amount of inert gas supplied at the outer peripheral portion is larger than that at the center thereof.

In the rejection of the appealed claims, the examiner relies upon the following reference:

Cady 4,544,446 Oct. 1, 1985

Appellants' claimed invention is directed to a method of cleaning wet-cleaned wafers that are not stored in a cassette. The method entails spin drying with an inert gas the face of a wafer as it is rotated at high speed in a sealed cleaning housing. The amount of inert gas applied at the outer peripheral portion of the wafer is larger than that supplied at the center of the wafer. According to appellants, the result of supplying the inert gas in a greater amount to the outer peripheral portion of the wafer "is that the concentration of oxygen is substantially reduced to zero or close to zero while decreasing the usage of the inert gas as much as possible" (page 3 of principal brief, penultimate paragraph).

Appealed claims 1-3 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Cady.¹

¹ The examiner has withdrawn the § 102 rejection over Bergman.

In accordance with the grouping of claims set forth at page 4 of the principal brief, claims 1 and 3 stand or fall together, whereas claim 2 is argued separately.

We have thoroughly reviewed each of appellants' arguments for patentability, as well as the declaration evidence relied upon in support thereof. However, we are in complete agreement with the examiner that the applied reference describes the claimed subject matter on appeal within the meaning of § 102. Accordingly, we will sustain the examiner's rejection for essentially those reasons expressed in the Answer.

There is no dispute that Cady, like appellants, describes a method of drying wet-cleaned wafers by spin drying the wafers in a chamber in the presence of an inert gas. The principal argument advanced by appellants is that Cady does not describe supplying the inert gas in a greater amount at the outer peripheral portion of the wafer than at the center of the wafer. However, we totally concur with the examiner that the method described in accordance with Figure 8B of Cady necessarily results in the claim limitation of supplying more inert gas to the outer peripheral portion of the wafer than to the center of the wafer. In the words of the examiner, the embodiment depicted in Figure 8B of Cady "provides gas supply ports such that the

surface area of the supply ports cumulatively is greater at the outer periphery of the showerhead than at the center thereof" (page 4 of Answer, last paragraph). We agree with the examiner that "the operation of the Cady apparatus inherently discloses a 3:1 ratio of gas volume" at the periphery relative to the center (id.).

Appellants contend at page 4 of the Reply Brief that the 3:1 ratio of gas volume at the periphery to the center of the wafer results in the inert gas being supplied uniformly to the wafer surface, which is in contradistinction to the claimed method of non-uniform supply to the peripheral and central portions of the wafer. However, appellants' argument is not germane to the claimed subject matter on appeal. The claimed method does not require non-uniform gas-flow across the wafer surface. The appealed claims only require that the supply of inert gas is greater at the periphery than at the center. In accordance with the Figure 1 submitted by appellants at page 4 of the Reply Brief, since the outer peripheral portion is three times as large as the center portion, uniform supply of gas through the apertures results in the claimed larger amount of gas supplied to the peripheral portion. Appellants are not claiming a greater amount of gas flow per unit area at the peripheral portion.

Stated simply, Figure 8B of Cady results in a total amount of inert gas supplied to the entirety of the peripheral portion greater than the amount of gas supplied to the smaller center portion.

Appellants rely upon a Declaration under 37 CFR § 1.132 by Hiroki Edo as evidence that "Cady's figures cannot be interpreted as showing that more gas is supplied toward the peripheral portion of the wafer surface than at the center, and that Cady's apparatus cannot inherently meet the limitations of claim 1" (page 8 of principal brief, last paragraph). However, as noted by the examiner, the declarant's conclusion that the apparatus of Cady's Figure 8B "does not appear to be able to obtain the gas flow limitations of present claim 1" is not supported by factual objective evidence (page 2 of Declaration, fourth paragraph, emphasis added). Lacking in the Declaration is any evidence that the declarant actually tested the apparatus of Cady corresponding to Figure 8B. Furthermore, the declarant's analysis is directed to the expected gas flow on the wafer surface resulting from the Cady apparatus. However, the claimed subject matter on appeal does not define any particular gas flow on the surface of the wafer but, rather, only requires that a greater amount of inert gas is supplied to the peripheral portion of the wafer than to

the center portion. Manifestly, such supply of inert gas inherently results from the Cady apparatus depicted in Figure 8B.

Concerning the separately argued limitation of claim 2 that "a sealed drying space is formed at the outer peripheral portion of the face of the wafer," we agree with the examiner that the sealed system discussed by Cady at column 7, lines 44-58 meets the claim requirement for the sealed drying space. Although Cady's structure for providing the sealed drying space at the outer peripheral portion of the wafer is different than the structure depicted in appellants' specification, appellants' disclosed structure is not at issue. Cady provides a sealed drying space at the outer peripheral portion of the wafer by affecting a flow path that always contains fluid which removes entrained and undesirable gases. When the apparatus of Cady is in operation the outer peripheral portion of the face of the wafer is sealed by the flow of inert gas.

In conclusion, based on the foregoing and the reasons well-stated by the examiner, the examiner's decision rejecting the appealed claims is affirmed.

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv) (effective Sep. 13, 2004; 69 Fed. Reg. 49960 (Aug. 12, 2004); 1286 Off. Gaz. Pat. Office 21 (Sep. 7, 2004)).

AFFIRMED

Edward C. Kimlin

EDWARD C. KIMLIN)
Administrative Patent Judge)
)

Thomas A. Waltz

THOMAS A. WALTZ)
Administrative Patent Judge)
)

Romulo H. Delmendo

ROMULO H. DELMENDO)
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